



# Multimedia Resources

「MASTERPIECE<sup>SM</sup>」



# FIRST® LEGO® League Challenge

## Multimedia Resources

Below is a session-by-session list of Multimedia Resources for this season. These resources include links to websites, videos, building instructions, and other online tools related to the content of each session.

Some of the resources below are from third-party sites not developed or managed by FIRST® or LEGO® Education, but they're too great not to share! You could share resources during sessions and/or encourage your students to explore them between sessions (with permission and supervision from a parent or guardian).

Go To Resources		
<a href="#">Email for General Support</a>	<a href="#">FIRST LEGO League Challenge: How It Works</a>	<a href="#">Getting Started with FIRST LEGO League Challenge video</a>
<a href="#">FIRST LEGO League YouTube Channel</a>	<a href="#">MASTERPIECE General Season Resources</a>	<a href="#">Teamwork Makes the Dream Work FIRST LEGO League Music Video</a>
General Resources		
<a href="#">LEGO Education Support</a>	<a href="#">FIRST LEGO League (global)</a>	<a href="#">FIRST LEGO League (US)</a>
<a href="#">Impact of FIRST Programs</a>	<a href="#">Buying Replacement Parts</a>	<a href="#">FIRST LEGO League Support Videos</a>
Coach and Mentor Resources		
<a href="#">FIRST Youth Protection</a>	<a href="#">FIRST Mentor Network</a>	<a href="#">FIRST Volunteer Resources</a>
Educator Resources		
<a href="#">Skills Progression</a>	<a href="#">Standards Alignments</a>	<a href="#">Scope and Sequence Options</a>
<a href="#">FIRST Certified Professional Development</a>	<a href="#">FIRST Education Philosophy</a>	
LEGO Educator Resources		
<a href="#">Self-Guided Professional Development</a>	<a href="#">LEGO Education Teacher Community</a>	<a href="#">LEGO Education Additional Lesson Content for SPIKE Prime and EV3</a>
Equity, Diversity, and Inclusion Resources		
<a href="#">FIRST Mentoring and Coaching with FIRST videos</a>	<a href="#">Inclusive Recruitment &amp; Enrollment Strategies</a>	<a href="#">Additional Training &amp; Resources</a>



## MASTERPIECE Season Resources

[Season resources](#) page includes:

- Season Launch Resources
- Links to Season Videos
- Challenge Overview
- Challenge Welcome Letter
- Challenge Introduction
- Challenge Set Building Instructions
- Student Participation Certificates
- Individuals Session Slides
- Robot Game Rulebook
- Mission Building Instructions
- Challenge Related Rule Updates
- MASTERPIECE Season video resources on [FIRST LEGO League YouTube Channel](#)
- [Season content](#) (logos, templates, graphics, posters, wallpapers)

## Core Values Resources

Book Resources	
The Squirrels who Squabbled by Rachel Bright	Fiction book about conflicts
A Little SPOT of Teamwork: A Story About Collaboration and Leadership by Diane Alber	Fiction book about teamwork
Brave Irene by William Steig	Fiction book about perseverance
The Invisible Boy by Patrice Barton	Fiction book about inclusion
My Mouth is a Volcano! by Julia Cook	Fiction book about taking turns
The Little Red Pen by Janet Stevens	Fiction book about cooperation
Going Places by Paul and Peter Reynolds	Fiction book about creativity
The Squirrels who Squabbled by Rachel Bright	Fiction book about conflicts
A Little SPOT of Teamwork: A Story About Collaboration and Leadership by Diane Alber	Fiction book about teamwork
Brave Irene by William Steig	Fiction book about perseverance
The Invisible Boy by Patrice Barton	Fiction book about inclusion
My Mouth is a Volcano! by Julia Cook	Fiction book about taking turns
Web Resources	
<a href="#">Team-Building Games and Activities for Kids</a>	We Are Teachers
<a href="#">Team Building for Kids: A Complete Guide</a>	Venture Team Building
<a href="#">FIRST at Home activities</a>	A variety of free resources and links



## Robotics Resources

<a href="#">FIRST Core Values through Social, Emotional Learning Activities</a>	Part of <i>FIRST</i> at Home
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### Team Management Resources

<a href="#">How to Do Goal Setting with Your Students This School Year</a>	Article from Weareteachers.com about setting goals with your students
<a href="#">How To Set Goals (4 Easy Steps) (4:40)</a>	Video from Rocket Kids about easy ways to set goals
<a href="#">LearnStorm Growth Mindset: How to write a SMART goal (2:52)</a>	Video from Khan Academy about writing SMART goals
<a href="#">Keeping Organized</a>	Tips and tricks from Droid Robotics on how to stay organized with tasks

### Robot Design Resources

<a href="#">Technical Resources</a>	Links to resources for Challenge
<a href="#">Yoshihito Isogawa's YouTube Channel</a>	SPIKE Prime building ideas from the author
<a href="#">Builderdude Robotics Tutorials</a>	Builderdude, former <i>FIRST</i> LEGO League team
<a href="#">Mr. Hino's LEGO Robotics YouTube Channel</a>	Various videos for <i>FIRST</i> LEGO League teams
<a href="#">Droid Robotics YouTube Channel</a>	Video tutorials for <i>FIRST</i> LEGO League teams
<a href="#">Robot Design and Robot Game Prep Activities</a>	Resources on building robots and preparing for the robot game from Droid Robotics

### Engineering Design Process, Design, and Computational Thinking

<a href="#">What is Computational Thinking?</a>	Teach Your Kids Code article about coding
<a href="#">The Engineering Process: Crash Course Kids #12.2 (5:16)</a>	Video by Crash Course Kids to explain the engineering design process to your students
<a href="#">Engineering Design Process Curriculum</a>	Various lessons to practice the engineering design process from Teach Engineering.org
<a href="#">Design Thinking Resources for Educators</a>	Innovation Training article on design thinking
<a href="#">Design Thinking: A Problem Solving Framework (5:22)</a>	Video from Edutopia providing examples of design thinking for educators

#### LEGO Education EV3 Resources

- [Download Software](#)
  - [MINDSTORMS EV3 Product Support](#)
- [EV3 Robot Trainer Unit](#)
  - [EV3 Supplemental Coding Activities](#)
  - [EV3 Lessons Coding Tutorials](#)



## LEGO Education SPIKE Prime Resources

- [SPIKE Prime Competition Ready Unit](#)
- [SPIKE Prime Supplementary Lessons](#)
- [SPIKE Prime Lessons](#)

## Innovation Project Resources

- [Download Software](#)
- [SPIKE Prime Product Support Videos](#)

Video Resources	
<a href="#">How to Pick a Project Topic and Conduct Research</a> (40:10)	Share & Learn Webinar Series from Droid Robotics
<a href="#">Essential Google Search Tricks for Research</a> (6:42)	Common Sense Media
<a href="#">Reading More Than One Source on a Topic</a> (3:15)	Khan Academy
<a href="#">Writing Videos for Kids: How to Evaluate Sources for Reliability</a> (3:48)	Teaching without Frills
<a href="#">How To Create Surveys</a> (20:25)	Droid Robotics
<a href="#">Innovation Project for <i>FIRST</i> LEGO League: Create and Iterate your Prototype</a> (13:46)	The Moment Makers, former <i>FIRST</i> LEGO League team from Pearland, TX
<a href="#">Project Presentation Tips and Tricks</a> (43:00)	Share & Learn Webinar Series from Droid Robotics
Schooled by Kids: <a href="#">Presentation Skills, Part 1</a> (1:44) <a href="#">Presentation Skills, Part 2</a> (1:31)	Green Ivy Schools
Web Resources	
<a href="#">Innovation Project Prep Activities</a>	Resources compiled by Droid Robotics for the innovation project
<a href="#">USPTO Educational for Kids, Parents, and Teachers</a>	United States Patent and Trademark Office
<a href="#">Expanding Students' Ideas About How to Give Presentations</a>	Edutopia
<a href="#">How to Help Students Develop Interviewing Skills</a>	Edutopia
<a href="#">How to Skype with an Expert in your Classroom</a>	Class Tech Tips
<a href="#">There's Got to be a Better Way Developing a Product</a>	Resources from Fun Kids –UK children's Radio Station

## STEAM Resources

### Museum Resources

Video Resources	
<a href="#">Different Kinds of Museums</a> (15:00)	Longer video talking about the different types of museums and their content
<a href="#">Museum Inside Out: The Exhibition Designer</a> (2:04)	Video of a museum exhibit designer talking about what he has to plan for with a new exhibit
Web Resources	
<a href="#">8 Top Technology Trends for Museums</a>	Article on eight forms of technology helping to change the way the audience interacts with museum exhibits
<a href="#">Virtual Children's Museum Visits</a>	A list of ten children's museums you can visit virtually
<a href="#">Virtual Art &amp; History Museum Tours</a>	A list of twenty art and history museums you can visit virtually
<a href="#">Smithsonian Museum Educator Resources</a>	A wealth of resources and digital tools for inquiry-based learning around the various Smithsonian umbrella of museums
Book Resources	
Simon at the Art Museum by Christina Soontornvat	Picture book about a boys first visit to an art museum and how his perspective changed

### Music Resources

Video Resources	
<a href="#">Elements of a Concert</a> (5:46)	Explains the basics of one type of concert
<a href="#">Career Connections Sound Engineer</a> (5:38)	The responsibilities of a sound engineer and how to become one
<a href="#">Musical Instrument Maker</a> (1:24)	Interview with musician and artist about how he makes unusual instruments with objects he finds
Web Resources	
<a href="#">Audio Engineer Facts for Kids</a>	Kiddle provides student friendly information about the role of an audio engineer

<a href="#">Interactive Audio Engineer Exploration</a>	KnowItAll.org provides an interactive experience for learning about the role of an audio engineer
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## Theater Resources

Video Resources	
<a href="#">Working Backstage at Aladdin the Musical</a> (4:01)	Production manager interview of Aladdin about what all happens to make the show a success
<a href="#">Adventures Backstage: What is a Stage Manager?</a> (7:14)	A great explanation of what a stage manager is and how they're involved in play production
Web Resources	
<a href="#">Setting the Stage</a> (average video is 5:00)	A 12-part video series highlighting STEAM professionals who create the live performances
<a href="#">It's Not Just a Stage</a>	An article covering what's what and where's where on a stage
<a href="#">Theater Facts for Kids</a>	Kiddle provides student friendly information about the history of theater

## Movie Resources

Video Resources	
<a href="#">How are movies made?   The movie making process explained</a> (6:07)	Video by Movie University explaining the process of making movies
<a href="#">Want to be a FILMMAKER when you grow up?</a> (12:36)	Video interview with a filmmaker – advice for kids interested in working in the movie/film industry
<a href="#">Career Connections: Animator</a> (6:01)	The responsibilities of a computer animation artist and how to become one
Web Resources	
<a href="#">Movie University</a>	YouTube page with various videos about movies
<a href="#">Cinematography Facts for Kids</a>	Kiddle provides student friendly information about the history of cinematography
Book Resources	
Action! How Movies Began by Meghan McCarthy	Great picture book about the history of movies and what technology advanced them



## Technology Enhancement Resources

Video Resources	
<a href="#">Camera Movement (and why it matters!)</a> (2:44)	Video on the seven basic camera movements and why they are important
<a href="#">How Does a Green-Screen Work?</a> (1:56)	Short video explaining how a green screen works
<a href="#">The Making of Star Wars — Pioneering Special Effects, VFX, and Sound Design</a> (13:03)	Video explaining how the making of Star Wars was the first of its kind in special/visual effects and sound design
Web Resources	
<a href="#">VFX – Everything You Need to Know</a>	Great article and videos about visual effects and when to use them
<a href="#">Working in the Visual Effects Industry</a>	Article and series of short videos on the skills needed to work in visual effects and animation
Book Resources	
Little Leonardo's Fascinating World of Technology by Bob Cooper	A short picture book that focuses on inventions and new technologies have advanced over time

## Event Preparation Resources

Event Resources	
<a href="#">Events Page</a>	firstlegoleague.org
<a href="#">Judging Session Flow Chart, Rubrics, and Awards List</a>	These resources are found on the Challenge Season Resources page
<a href="#">The Tournament Experience</a> (1:55)	Video by LEGO Education on the basics of the tournament experience for a team
<a href="#">Customizable Student Certificates</a>	Printable certificates to award to each student
<a href="#">Tournament Tips</a>	FLL Tutorials Coaches Corner Tips
<a href="#">Tips from Core Values Judges</a>	FLL Tutorials Coaches Corner Tips
<a href="#">Tips from Innovation Project Judges</a>	FLL Tutorials Coaches Corner Tips
<a href="#">Tips from Robot Design Judges</a>	FLL Tutorials Coaches Corner Tips



## Career Resources

<b>General Career Resources</b>	
Visit the <a href="#">Learning Lab</a> and search careers from A-Z	PBS Learning Media
<a href="#">Amazon Future Engineer Class Chat</a>	Amazon
<a href="#">O*NET Online</a>	United States Department of Labor
<a href="#">Career Exploration Lesson Plans</a>	Nebraska Department of Education
<a href="#">Career Resources for Elementary Grades P-5</a>	Workforce Solutions
<a href="#">Career Exploration</a>	Career profiles from the United States Bureau for Labor and Statistics
<a href="#">Career Exploration Kahoot Course</a>	Kahoot Courses for learning about careers and how <i>FIRST</i> prepares you for your future
<a href="#">X-STEM All Access</a>	YouTube Playlist with one-hour long video interviews with various STEM professionals
<b>MASTERPIECE Career Resources</b>	
<a href="#">Music Career Resources</a>	Learn about the various careers in music and the experience you need for each job
<a href="#">Music Career Resources and Tools</a>	Learn where to get the experience necessary for certain music careers
<a href="#">Working in Theater</a>	Various videos on the jobs you can have working in theater – both technical and nontechnical
<a href="#">Film School &amp; Careers in Film: How to Become a Filmmaker</a>	Article covering the ways to work in the film industry including the schooling opportunities
<a href="#">MUSEUM CAREERS 101   Types of Museums</a> (14:37)	Video giving an overview of the various careers in museums
<a href="#">Highest Paid Museum Careers Part 1   Museum Career Ideas   Discover If Museum Jobs Are for You</a> (7:59)	Video discussing the skills and interests for those who want to work in museums

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## Additional Resources

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Extension Activity Resources	
<a href="#">What is a Robot?</a>	Lesson plan from PBS Learning Media
<a href="#">Wild-Inspired Robotic Arms</a>	Video, background reading, and lesson plan from PBS Learning Media
<a href="#">Engineering for Good</a>	Project-based Unit from PBS Learning Media
<a href="#">Project Management Fiction Books for Youth Ages 10-12</a>	Project Management Institute Educational Foundation
<a href="#">Books on Inventors</a>	Inventive Kids
<a href="#">Invention Education Curricula</a>	Links to invention-focused lesson plans from Invent Ed
<a href="#">Drawing Designs in Detail</a>	Hands-on activity plan from teachengineering.org

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